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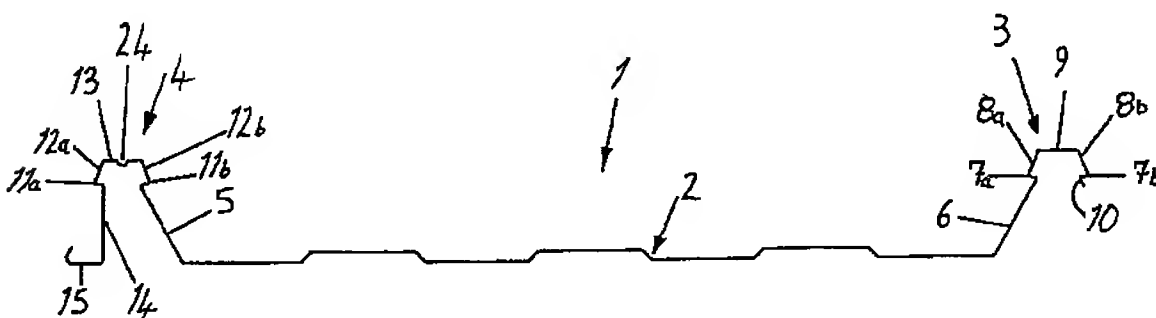
(56) Documents cited  
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UK CL (Edition K) E1D DLEQWDV DLEQWNV  
DLEQWSV  
INT CL<sup>5</sup> E04C, E04D

(54) Building covering

(57) A building covering comprises at least two unitary building panels 1, each of metallic sheet material having a castellated portion 2 interconnecting two marginally extending ribs 3, 4. Both ribs 3 and 4 comprise upwardly extending sloping portions 6, 5, outwardly extending shoulders 7a, 7b and 11a, 11b, sloping portions 8a, 8b, 12a, 12b, and upper ridges 9, 13. Shoulder 7b of rib 3 further comprises a free lip end 10 extending down and outward from the rib. Rib 4 further comprises a perpendicular support section 14 extending downwardly from shoulder 11a, connected at its lowermost end to a laterally extending base portion 15. The complementary engagement between two building panels is in the nature of a snap fit, such that no further fastening means are needed.

FIG 2



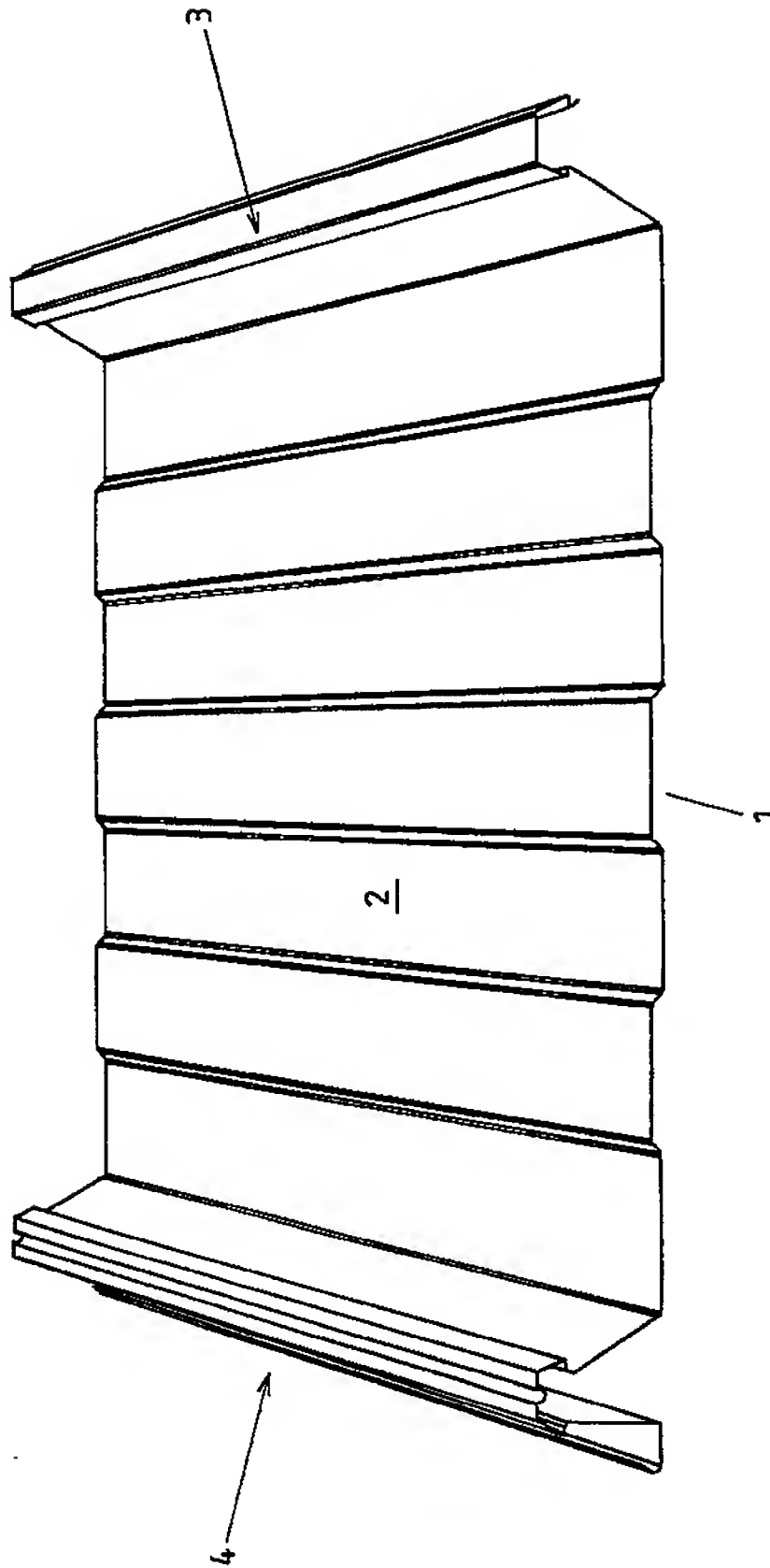


FIG. 1

FIG 2

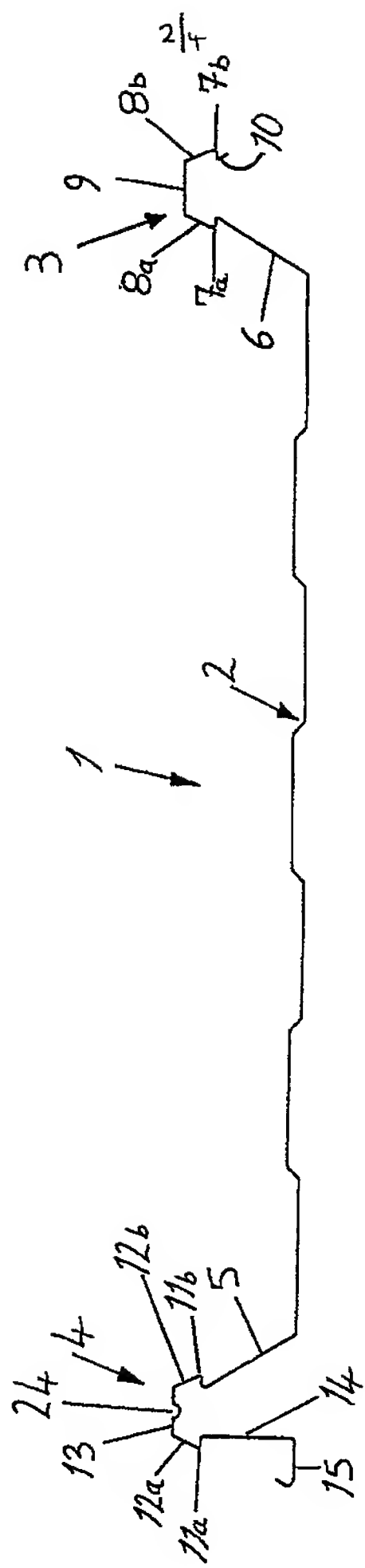


FIG 3a

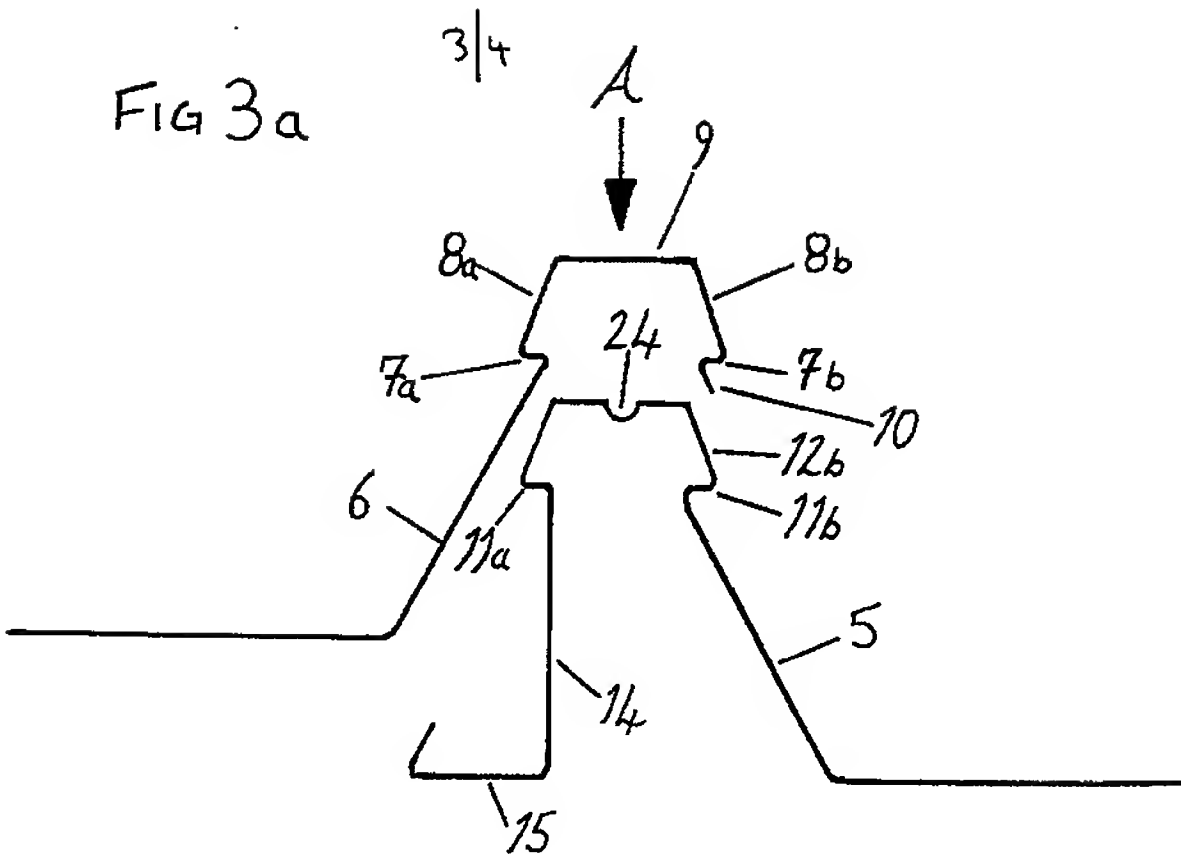


FIG 3b

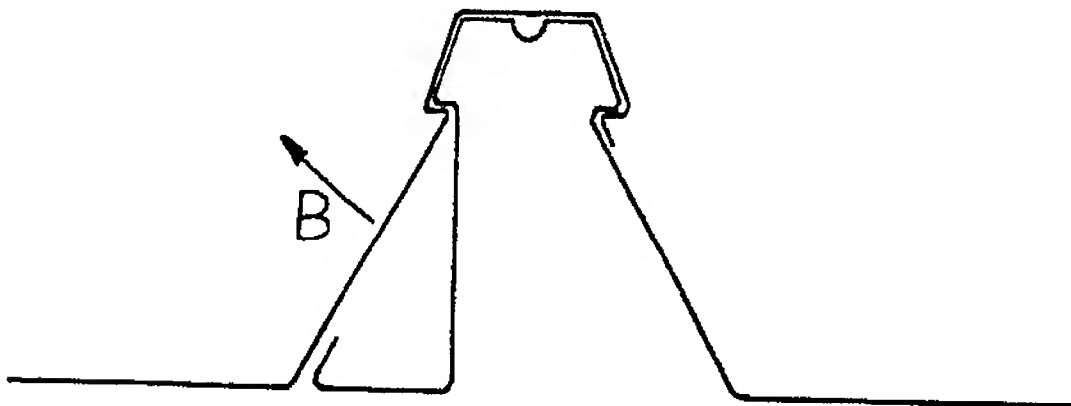
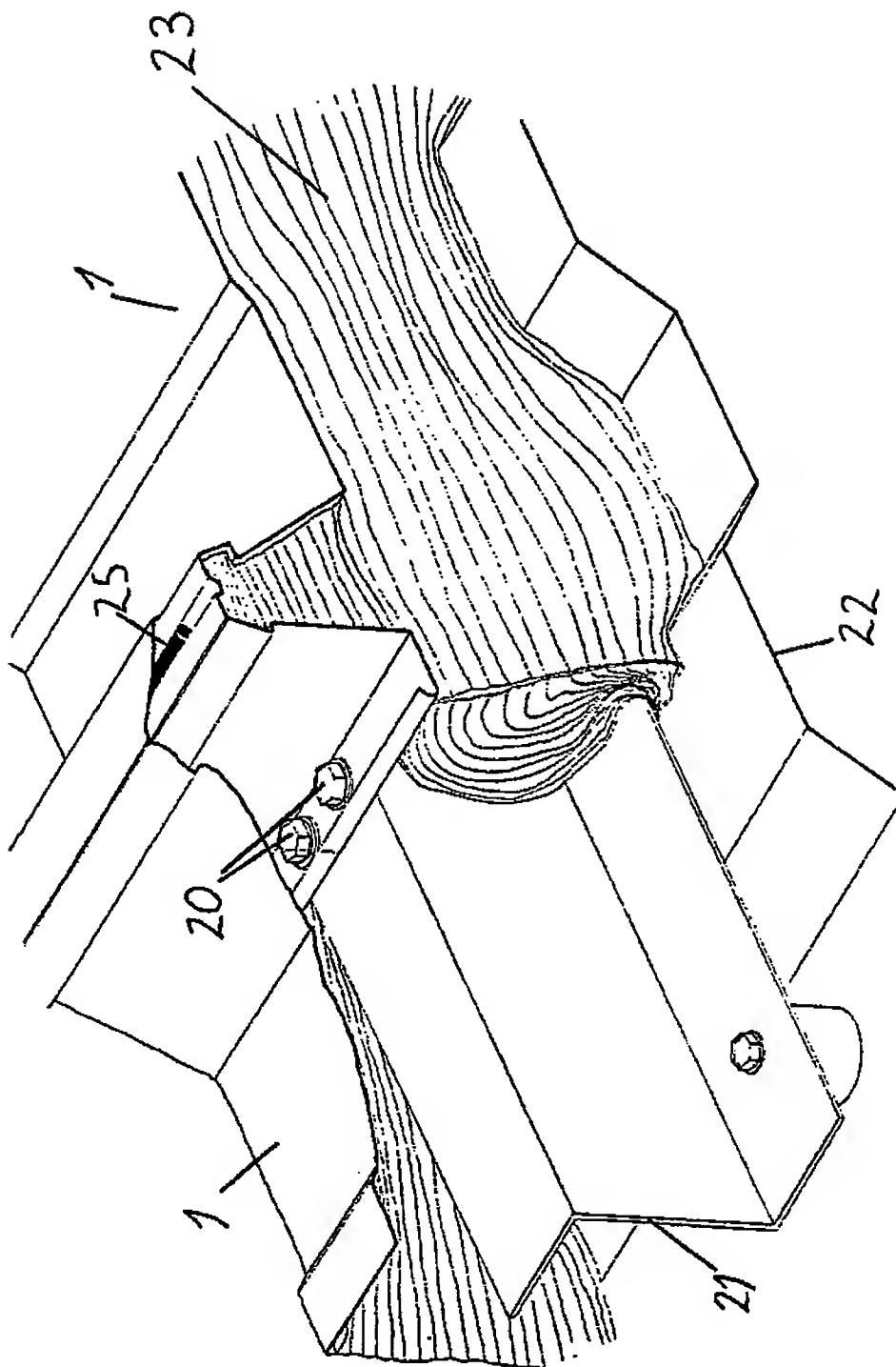


FIG 4



Building Covering

The present invention relates to covering for a building and, in particular, a covering for a building which comprises a plurality of interengageable building panels.

According to the present invention, there is provided a building covering comprising at least two unitary building panels each of which comprises an integral sheet member lying generally in a first plane, optionally with one or more corrugations or castellations extending from said plane, and integral first and second marginal ribs at opposite edges thereof; the first marginal rib comprising

- (a) a first sloping portion at an obtuse angle to said first plane;
- (b) a first shoulder portion extending from the edge of said first sloping portion towards the second marginal rib;
- (c) a second sloping portion extending from the edge of said shoulder portion remote from said first sloping portion;
- (d) a first ridge portion extending from the edge of said second sloping portion in a direction away from the second marginal rib and generally in a second plane substantially parallel to said first plane;
- (e) a third sloping portion extending from said second plane towards said first plane, at least part of said lip portion being intumed relative to said first and second sloping portions; and
- (f) a second shoulder portion extending from said third sloping portion towards said first shoulder portion; and

the second marginal rib comprising

- (a) a fourth sloping portion at an obtuse angle to said plane;
- (b) a third shoulder portion extending from the edge of said fourth sloping portion, at an acute angle thereto, towards the first marginal rib;
- (c) a fifth sloping portion extending from the edge of said third shoulder portion remote from said fourth sloping portion;
- (d) a second ridge portion extending from the edge of the fifth sloping portion in a direction away from the first marginal rib and generally in a third plane substantially parallel to said first plane, such that the spacing between said third plane and said first plane is slightly less than the spacing between said second plane and said first plane;
- (e) a sixth sloping portion extending at an obtuse angle from said second ridge portion;
- (f) a fourth shoulder portion which extends from the edge of said sixth sloping portion towards said third shoulder portion;
- (g) a substantially perpendicular portion extending from said fourth shoulder portion towards said first plane and generally in a plane substantially perpendicular thereto; and
- (h) a flange portion extending from the edge of said perpendicular portion in a direction away from said fourth sloping portion;

said first and second marginal ribs being such that the third sloping portion and second shoulder portion of a first building panel can complementarily engage with the third shoulder portion

of an adjacent second building panel, such that said first ridge portion of said first panel overlies said second ridge portion of said second building panel.

The complementary engagement between the first and second building panels is preferably in the nature of a snap-fit such that no further fastening means (such as rivets, screws or the like) are needed to secure the first and second panels together.

Embodiments of the present invention will now be described with reference to the accompanying drawings, which are by way of example only, and in which:

Figure 1 is a perspective view of a building panel for use in making a building covering according to the invention;

Figure 2 is a schematic sectional view of the panel of Figure 1;

Figure 3 is a sectional view, similar to that of Figure 2, showing the engagement of marginal ribs of adjacent panels; and

Figure 4 is a partially cut-away view of part of a roof covering employing panels such as those of Figures 1 and 2.

Referring to Figures 1 to 4, a building panel generally designated 1 is of metallic sheet material having a generally castellated portion 2 interconnecting two marginally extending ribs 3,4. Each of the ribs has an upwardly extending sloping portion 5,6, which portions are both inclined at the same angle relative to the planar portion 2. The rib 5 is provided



with outwardly extruding shoulders 7a,7b at the level of the uppermost extent of sloping portion 6, the shoulders 7a and 7b being connected by further sloping portions 8a,8b to an upper ridge 9. Shoulder 7b has a free lip end 10 extending down and outward from the rib 3.

The rib 2 has shoulders 11a, 11b similar to shoulders 7a, 7b of the rib 3, which are once again connected by further sloping portions 12a, 12b to an upper ridge 13. A perpendicular support section 14 extends downwardly from the shoulder 11a and is connected at its lowermost end to a laterally extending base portion 15.

Since the panels including the ribs 2,3 are formed of unitary thin metallic sheets the free lip end 10, shoulder 7b and sloping portion 8b of the rib 3 are slightly resiliently flexible relative to the rest of the rib portion 3.

As shown in figures 3a and 3b, this enables the rib 3 to be snap fastened to the rib 4, as under the influence of downward pressure applied to the rib 3 (arrow A), shoulders 7a and 7b are forced apart by the sloping portions 12a, 12b on the rib 2, before resiliently snapping back to their original positions when the shoulders 7a and 7b have cleared their respective shoulders 11a and 11b on the rib 2. In this way the ribs 2 and 3 are effectively fastened together interlocking adjacent panels. In order to release the snap fit mechanism, a twisting torque (arrow B) is applied to panel 1a, causing the shoulder 7a to disengage from its complementary shoulder 11a due

to the resilience of the sheet material. In this way damaged panels may be conveniently removed and easily replaced with new panels.

In use, fixing bolts 20 pass through the laterally extending base portion 15 and for example may be fastened to supporting beams or a fabricated metal support spacer 21 as shown in Figure 4. Here, the support spacer is mounted on a lower skin 22 of a building roof, with a layer of insulating quilt 23 being interposed between the lower skin 22 and roof panels 1. It should be noted that the fixing bolts passing through the base portion are obscured from view on the external surface of the covering.

The perpendicular support section 14 serves to add rigidity to the snap fit panel joint and present the sloping sides 5 and 6 from splaying apart if for example someone should put their weight on the joint.

A further feature of the panels 1 is the groove 24 provided on the upper ridge 13 of the rib 4. This groove 24 receives and locates a resilient rubber element 25 which is compressed whilst the ribs 3 and 4 are being snap fitted together, and being resilient biases the shoulders 7a and 7b into contact with their respective complementary shoulders 11a and 77b once the snap fit has been effected. The rubber element also effects a seal between the interlocking panels preventing water or moisture ingress from outside the building.

CLAIMS:

1. A building covering comprising at least two unitary building panels each of which comprises an integral sheet member lying generally in a first plane, and integral first and second marginal ribs at opposite edges thereof:  
the first marginal rib comprising
  - (a) a first sloping portion at an obtuse angle to said first plane;
  - (b) a first shoulder portion extending from the edge of said first sloping portion towards the second marginal rib;
  - (c) a second sloping portion extending from the edge of said shoulder portion remote from said first sloping portion;
  - (d) a first ridge portion extending from the edge of said second sloping portion in a direction away from the second marginal rib and generally in a second plane substantially parallel to said first plane;
  - (e) a third sloping portion extending from said second plane towards said first plane, at least part of said lip portion being intumed relative to said first and second sloping portions; and
  - (f) a second shoulder portion extending from said third sloping portion towards said first shoulder portion; andthe second marginal rib comprising
  - (a) a fourth sloping portion at an obtuse angle to said plane;
  - (b) a third shoulder portion extending from the edge of said fourth sloping portion, at an acute angle thereto, towards the first marginal rib;

(c) a fifth sloping portion extending from the edge of said third shoulder portion remote from said fourth sloping portion;

(d) a second ridge portion extending from the edge of the fifth sloping portion in a direction away from the first marginal rib and generally in a third plane substantially parallel to said first plane, such that the spacing between said third plane and said first plane is slightly less than the spacing between said second plane and said first plane;

(e) a sixth sloping portion extending at an obtuse angle from said second ridge portion;

(f) a fourth shoulder portion which extends from the edge of said sixth sloping portion towards said third shoulder portion;

(g) a substantially perpendicular portion extending from said fourth shoulder portion towards said first plane and generally in a plane substantially perpendicular thereto; and

(h) a flange portion extending from the edge of said perpendicular portion in a direction away from said fourth sloping portion;

said first and second marginal ribs being such that the third sloping portion and second shoulder portion of a first building panel can complementarily engage with the third shoulder portion of an adjacent second building panel, such that said first ridge portion of said first panel overlies said second ridge portion of said second building panel.

2. A building panel according to claim 1, which includes one or more corrugations or castellations extending from said first plane.

3. A building panel according to claim 1 or 2, wherein the complementary engagement between said first and second building panels is in the nature of a snap-fit.

4. A building covering according to any of claims 1 to 3, wherein at least one of said first or second ridge portions is provided with a groove extending therealong, said groove being arranged in use to locate an elongate resilient sealing member between said first and second ridge portions.

5. A building covering according to any preceding claim, wherein said flange portion on said second marginal rib is provided with one or more aperture(s) through which respective fixing member(s) may extend in use.

6. A building covering substantially as described herein with reference to the accompanying drawings.